

| Site: SORGHUM                                                                |                  |                  |                   |                  | Overall Confidence Rating: M |                  |                                   |     |
|------------------------------------------------------------------------------|------------------|------------------|-------------------|------------------|------------------------------|------------------|-----------------------------------|-----|
| Background: Total acres planted was approximately 13, 470,000 <sup>1</sup> . |                  |                  |                   |                  |                              |                  |                                   |     |
| Organophosphate<br><br>Pesticides                                            | % Treated        |                  | # Applications/yr |                  | Rate (lb AI/A)/yr            |                  | PHI (days)                        |     |
|                                                                              | Max <sup>5</sup> | Avg <sup>5</sup> | Max               | Avg              | Max                          | Avg <sup>5</sup> | Min                               | Avg |
| chlorpyrifos                                                                 | 5                | 3                | 2 <sup>3</sup>    | 1 <sup>5</sup>   | 1 <sup>6</sup>               | 0.5              | 30 <sup>3</sup> --60 <sup>6</sup> | --- |
| diazinon <sup>D</sup>                                                        | ---              | ---              | ---               | ---              | 4 <sup>6</sup>               | ---              | 7 <sup>6</sup>                    | --- |
| dimethoate                                                                   | 1                | 1                | 3 <sup>3</sup>    | ---              | 0.5 <sup>4</sup>             | ---              | 28 <sup>3</sup>                   | --- |
| disulfoton                                                                   | 1                | <1               | 3 <sup>3</sup>    | 1 <sup>5</sup>   | 1 <sup>4</sup>               | 0.5              | 7 <sup>3</sup> --60 <sup>4</sup>  | --- |
| malathion                                                                    | 0.3              | 0.1              | as needed         | 1.0 <sup>5</sup> | 0.95 <sup>6</sup>            | 1.1              | 3--7 <sup>6</sup>                 | --- |
| methamidophos                                                                | <1               | <1               | ---               | 1.0 <sup>5</sup> | ---                          | 1                | ---                               | --- |
| methidathion                                                                 | ---              | ---              | 3 <sup>6</sup>    | ---              | 0.5 <sup>6</sup>             | ---              | 30 <sup>6</sup>                   | --- |
| oxydemeton-methyl                                                            | <1               | <1               | ---               | 1.0 <sup>5</sup> | ---                          | 0.24             | —                                 | --- |
| parathion, ethyl                                                             | ---              | 1                | ---               | ---              | 0.95 <sup>6</sup>            | ---              | 12--21 <sup>6</sup>               | --- |
| phorate                                                                      | 1                | 1                | 2 <sup>4</sup>    | 1 <sup>3</sup>   | 1 <sup>4</sup>               | ---              | 28 <sup>6</sup>                   | --- |
| terbufos                                                                     | 12               | ---              | 1.0 <sup>3</sup>  | ---              | 3.92 <sup>6</sup>            | ---              | ---                               | --- |

note: Acephate does not have a tolerance listed for use on sorghum (see Tolerance Index System), as of 7/2/98.

\* Superscript numbers refer to resources used; superscript letters refer to timing of applications (see last page).

Confidence Rating: H= high confidence = data from several confirming sources; confirmed by personal experience

M = medium confidence = data from only a few sources; may be some conflicting or unconfirmed info.

L = low confidence = data from only one unconfirmed source

| Organophosphate Target Pests for (YOUR CROP) (Primary pests controlled by the OP's) |                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Major                                                                               | aphids, wireworms, cutworms                                                                                                                                                         |
| Moderate                                                                            | stink bugs, chinch bugs, rootworms                                                                                                                                                  |
| Minor                                                                               | grasshoppers, ants, other lepidopteran larvae, weevils, beetle grubs, midges, borers, fleahoppers, mites, thrips, seed-corn beetles, false chinch bugs, nematodes, sorghum webworm. |

Major = 20+% of all OP usage on pest; Moderate = 5-20% of all OP usage on pest; Minor = <5% of all OP usage on pest

### Sources:

- (1). Doane 1996
- (2). QUA Plus
- (3). State Recommendations
- (4). Insect Control Guide 1997 (Vol. 9)
- (5). QUA
- (6). LUIS

### Key to Timing (see Pest Summary Matrix)

A = seed timing

B = at plant timing

C = postemergence/foliar spray timing

D = boot timing

Date: 6/15/98

Site: SORGHUM

Region: national

| Pest                                                                            | Organophosphate                | Efficacy       | Mkt  | Class | Alt. Pesticide List        | Efficacy       | Mkt  | Comments on Alternatives |
|---------------------------------------------------------------------------------|--------------------------------|----------------|------|-------|----------------------------|----------------|------|--------------------------|
| Timing: see key to timing                                                       |                                |                |      |       |                            |                |      |                          |
| <b>Aphids</b><br>[greenbugs, corn leaf aphids, etc.]<br>(major)<br><br>aphidids | chlorpyrifos                   | ○ <sup>2</sup> | med. | C     | aldicarb                   |                | low  |                          |
|                                                                                 | dimethoate                     |                | low  | C     | carbofuran                 | ☺ <sup>2</sup> | low  |                          |
|                                                                                 | disulfoton <sup>B</sup>        |                | med. | P     | lambda-cyhalothrin         |                | low  |                          |
|                                                                                 | malathion <sup>2</sup>         |                | ---  | P     | permethrin                 |                | low  |                          |
|                                                                                 | parathion, ethyl               |                | med. | C     | thiodicarb                 |                | low  |                          |
|                                                                                 | phorate <sup>B</sup>           |                | low  |       |                            |                |      |                          |
|                                                                                 | oxydemeton-methyl <sup>3</sup> |                | ---  |       |                            |                |      |                          |
|                                                                                 | terbufos <sup>3B</sup>         | ○ <sup>2</sup> | high |       |                            |                |      |                          |
| <b>Wireworms</b><br>(major)<br><br>elaterids                                    | chlorpyrifos                   |                | high | C     | carbofuran <sup>3</sup>    | ○ <sup>3</sup> | ---  |                          |
|                                                                                 | diazinon <sup>3A</sup>         |                | ---  | O     | imidacloprid <sup>3A</sup> |                | ---  |                          |
|                                                                                 | terbufos <sup>3B</sup>         |                | high | CH    | lindane <sup>3A</sup>      |                | ---  |                          |
|                                                                                 |                                |                |      | P     | permethrin                 |                | med. |                          |
| <b>Cutworms</b><br>[black cutworm]<br>(major)<br><br>noctuids                   | chlorpyrifos                   | ○ <sup>3</sup> | high | P     | esfenvalerate              |                | low  |                          |
|                                                                                 | terbufos <sup>3B</sup>         |                | med. | P     | lambda-cyhalothrin         |                | low  |                          |
|                                                                                 |                                |                |      | P     | permethrin                 |                | med. |                          |

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Pest Importance: Major = 20+% of all OP usage on pest; Moderate = 5-20% of all OP usage on pest; Minor = <5% of all OP usage on pest

Efficacy Rating: Excellent = ☺ Good = ○ Fair = ●

Market Share: High = use of OP represents 20+% of all insecticide usage on pest; Med = 5-20% of all usage on pest; Lo = <5% of all usage on pest

Insecticides: C = Carbamates; P = Pyrethroids; CH = Chlorinated Hydrocarbons; IGR = Insect Growth Regulators; B = Biological; O = Other pesticides

Site: SORGHUM

Region: national

| Pest                                                                                                | Organophosphate            | Efficacy | Mkt  | Class | Alt. Pesticide List          | Efficacy | Mkt  | Comments on Alternatives                                                                |
|-----------------------------------------------------------------------------------------------------|----------------------------|----------|------|-------|------------------------------|----------|------|-----------------------------------------------------------------------------------------|
| Timing: see key to timing                                                                           |                            |          |      |       |                              |          |      |                                                                                         |
| <b>Hemipteran Bugs</b><br>[chinch bugs, green stink bugs] (moderate)<br><br>lygaeids<br>pentatomids | chlorpyrifos <sup>3C</sup> |          | med. | C     | aldicarb <sup>3B</sup>       |          | ---  | note: cyfluthrin – is a restricted use chemical.<br>note: carbofuran - use precautions. |
|                                                                                                     | diazinon <sup>3A</sup>     |          | ---  | C     | carbaryl <sup>3C</sup>       |          | low  |                                                                                         |
|                                                                                                     | dimethoate                 |          | low  | C     | carbofuran <sup>3B, 3C</sup> |          | high |                                                                                         |
|                                                                                                     | disulfoton                 |          | med. | P     | cyfluthrin <sup>3</sup>      |          | ---  |                                                                                         |
|                                                                                                     | parathion, ethyl           |          | low  | P     | esfenvalerate                |          | low  |                                                                                         |
|                                                                                                     | phorate                    |          | low  | CH    | endosulfan                   |          | low  |                                                                                         |
|                                                                                                     | terbufos <sup>3B</sup>     |          | high | O     | imidacloprid <sup>3A</sup>   |          | ---  |                                                                                         |
|                                                                                                     |                            |          |      | CH    | lindane <sup>3A</sup>        |          | ---  |                                                                                         |
|                                                                                                     |                            |          |      | C     | methomyl                     |          | low  |                                                                                         |
|                                                                                                     |                            |          |      | C     | thiodicarb                   |          | low  |                                                                                         |
| <b>Rootworms</b><br>(moderate)<br><br>chrysomelids                                                  | terbufos                   |          | high | C     | carbofuran                   |          | med. |                                                                                         |
|                                                                                                     |                            |          |      | P     | lambda-cyhalothrin           |          | med. |                                                                                         |
|                                                                                                     |                            |          |      | P     | tefluthrin                   |          | low  |                                                                                         |
| <b>Grasshoppers</b><br>(minor)<br><br>acridids                                                      | chlorpyrifos               |          | low  | C     | carbaryl                     |          | low  |                                                                                         |
|                                                                                                     | dimethoate                 |          | med. | P     | lambda-cyhalothrin           |          | med. |                                                                                         |
|                                                                                                     | parathion, ethyl           |          | high |       |                              |          |      |                                                                                         |

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Site: SORGHUM

Region: national

| Pest                                                                                                | Organophosphate        | Efficacy | Mkt  | Class | Alt. Pesticide List           | Efficacy | Mkt  | Comments on Alternatives |
|-----------------------------------------------------------------------------------------------------|------------------------|----------|------|-------|-------------------------------|----------|------|--------------------------|
| Timing: see key to timing                                                                           |                        |          |      |       |                               |          |      |                          |
| <b>Ants</b><br>(minor)<br><br>formicids                                                             | chlorpyrifos           |          | low  | O     | cryolite                      |          | med. |                          |
|                                                                                                     | terbufos <sup>3B</sup> |          | high |       |                               |          |      |                          |
| <b>Lepidopterous Larvae - others</b><br>(minor)<br><br>[corn earworm,<br>fall armyworm]<br>noctuids | chlorpyrifos           |          | med. | B     | <i>Bacillus thuringiensis</i> | ●        | low  |                          |
|                                                                                                     | dimethoate             |          | low  | P     | cyfluthrin                    |          | med. |                          |
|                                                                                                     | parathion, ethyl       |          | low  | P     | cypermethrin                  |          | low  |                          |
|                                                                                                     |                        |          |      | CH    | endosulfan                    |          | low  |                          |
|                                                                                                     |                        |          |      | P     | esfenvalerate                 |          | low  |                          |
|                                                                                                     |                        |          |      | P     | lambda-cyhalothrin            |          | high |                          |
|                                                                                                     |                        |          |      | C     | methomyl                      |          | med. |                          |
|                                                                                                     |                        |          |      | P     | permethrin                    |          | low  |                          |
|                                                                                                     |                        |          |      | C     | thiodicarb                    |          | low  |                          |
|                                                                                                     |                        |          |      | P     | zetamethrin                   |          | low  |                          |
| <b>Midges</b><br>(minor)<br>[sorghum midge]<br>cecidomyiids                                         | chlorpyrifos           |          | low  | O     | barium polysulfide            |          | low  |                          |
|                                                                                                     | dimethoate             |          | low  | P     | esfenvalerate                 |          | low  |                          |
|                                                                                                     |                        |          |      | P     | lambda-cyhalothrin            |          | high |                          |
|                                                                                                     |                        |          |      | P     | permethrin                    |          | low  |                          |
|                                                                                                     |                        |          |      | P     | zetamethrin                   |          | low  |                          |

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**ADDITIONAL INFORMATION:**

*Keys to Timing:* (A) seed timing; (B) at plant timing; (C) postemergence/foliar timing spray; (D) boot timing.

**RESOURCES:**

Keys to Resources:

- (1). Doane 1996
- (2). QUA plus (database and recent arrivals)
- (3). State Recommendations
- (4). Insect Control Guide, Vol. 9 (1997)
- (5). QUA
- (6). LUIS

Date: 6/12/98